

Best Track Committee Re-Analysis Comments for 1969  
Response to the Comments are provided in indented **boldface** –  
Chris Landsea and Sandy Delgado – September 2021

General comments:

1. Some of the 1969 storms highlight the need to obtain the ship/synoptic station reporting code FM 21.D then in use. The Mariners Weather Log has some information, but without the code handbook it is often unclear what units the winds are being reported in and what the pressures are. The ship reporting code is apparently in ESSA Weather Bureau Observing Handbook #1, "Marine Surface Observations". However, an online search could not find this. COADS may have decoded some of these obs already, but it would be useful to decode the Storm Wallet ship reports to ensure that COADS has them.

**Thank you for all of the detailed specific comments. These allow for a much improved HURDAT2. However, decoding individual ship observations that have already been used by the Hurricane Specialists in 1969 is beyond the scope of this project.**

2. When possible, these comments include the number for system listed in the Suspects list and the Storm Wallet ID# for system documented there.

**Thank you for these additional documentation labels.**

1969 AL011969, Unnamed/Suspect #7:

1. The Committee concurs with the removal of this system from HURDAT, but would like to have the microfilm (MF) maps for it in the archive.

**These microfilm images have now been included in the binders.**

1969 AL021969, Unnamed/Suspect #8:

1. The Committee concurs with the removal of this system from HURDAT, but would like to have the MF maps for it in the archive.

**These microfilm images have now been included in the binders.**

1969 AL031969, Tropical Depression/Storm Wallet TD#7:

1. The Committee notes what looks like a 1006 mb observation in Mexico on the 1800 UTC 8 June surface map in the Storm Wallet. Based on this, is there a need for a land station highlight section for at least this day?

**Agreed to add this in as a land station highlight.**

2. The Committee concurs with the proposed changes.

**Agreed.**

1969 AL041969, Unnamed/Suspect #9/Storm Wallet TD#8:

1. The Committee concurs with the removal of this system from HURDAT, but would like to have the MF maps for it in the archive.

**These microfilm images have now been included in the binders.**

1969 AL051966, Tropical Depression/Storm Wallet TD#13/Suspect #12:

1. The Committee does **not** concur with the removal of this system. This is a depression documented by the Barbados Oceanographic and Meteorological Experiment (BOMEX) experiment with a published paper in the Monthly Weather Review ([https://journals.ametsoc.org/view/journals/mwre/104/4/1520-0493\\_1976\\_104\\_0443\\_awditw\\_2\\_0\\_co\\_2.xml](https://journals.ametsoc.org/view/journals/mwre/104/4/1520-0493_1976_104_0443_awditw_2_0_co_2.xml)) and a MIT Masters thesis at <https://core.ac.uk/download/pdf/4418957.pdf>. Please include the MWR reference in the write-up.

**Agreed to retain the system as a tropical depression and to reference the MWR article.**

2. Navy Recon planes supporting BOMEX reported wind centers associated with the system, although there are no vortex messages available. The significant reports are in the following images from the Storm Wallet:

	ZCZC URXX KNIR 0 2621644Z FM N37896 BT UR NAVY BOMEX ELEVEN 97779 16304 70143 59202 03102 18024 26238 00013 118XX 812XX 41526 52652 ST295 RPT 70143 59202 18024 41526 WIND CENTER ESTIMATED NEAR 14.8N 59.6W AT 1630Z MAX WIND 30 KNOTS MINIMUM SLP 1012 MBS BT
--	--

ZCZC  
URXX KNIP 0 261937Z JUL 69  
FM N37896  
BT  
UR NAVY BOMEX SIXTEEN  
97779 19304 70142 58802 03101 16020 27238 00013 1258X 81040  
650XX 41720 54552 ST293 RPT 70142 58802 16020 41720  
BT

0 262022Z JUL  
FM N37896  
BT  
UR NAVY BOMEX SEVENTEEN  
97779 20004 70146 60102 03101 18024 26234 90013 13218 80935  
64043 460XX 41620 54542 ST294RPT 70146 60102 18024 41620  
CENTER AT 2000Z EST NEAR 14.6N 60.3W MIM SLP 1011 MBS THREE  
DEG CENT RISE IN CENTER  
BT

**The vortex messages have been added into the daily summaries.**

1969 AL061969, Tropical Storm Ana:

1. Is the ship report of 40 kt and 1006 mb at 2100 UTC 27 July sufficient to assign a central pressure of 1002 mb at that time?

**Yes. This is now added in.**

2. The Committee concurs with the proposed reduction in intensity from 60 kt to 50 kt on 29 July.

**Agreed.**

3. Please re-examine the data for 31 July to see if the 35 kt winds reported on COADS were truly representative of the strength of the system, given that it had degenerated to a tropical wave.

**Given that the system has degenerated to a wave, it's a bit more ambiguous as how to define whether an observation is representative of the strength of the system. However, examining the observations, they do appear to be legitimate 35 kt measurements and are directly related to the tropical wave. We'd prefer to retain the 35 kt intensity on this date.**

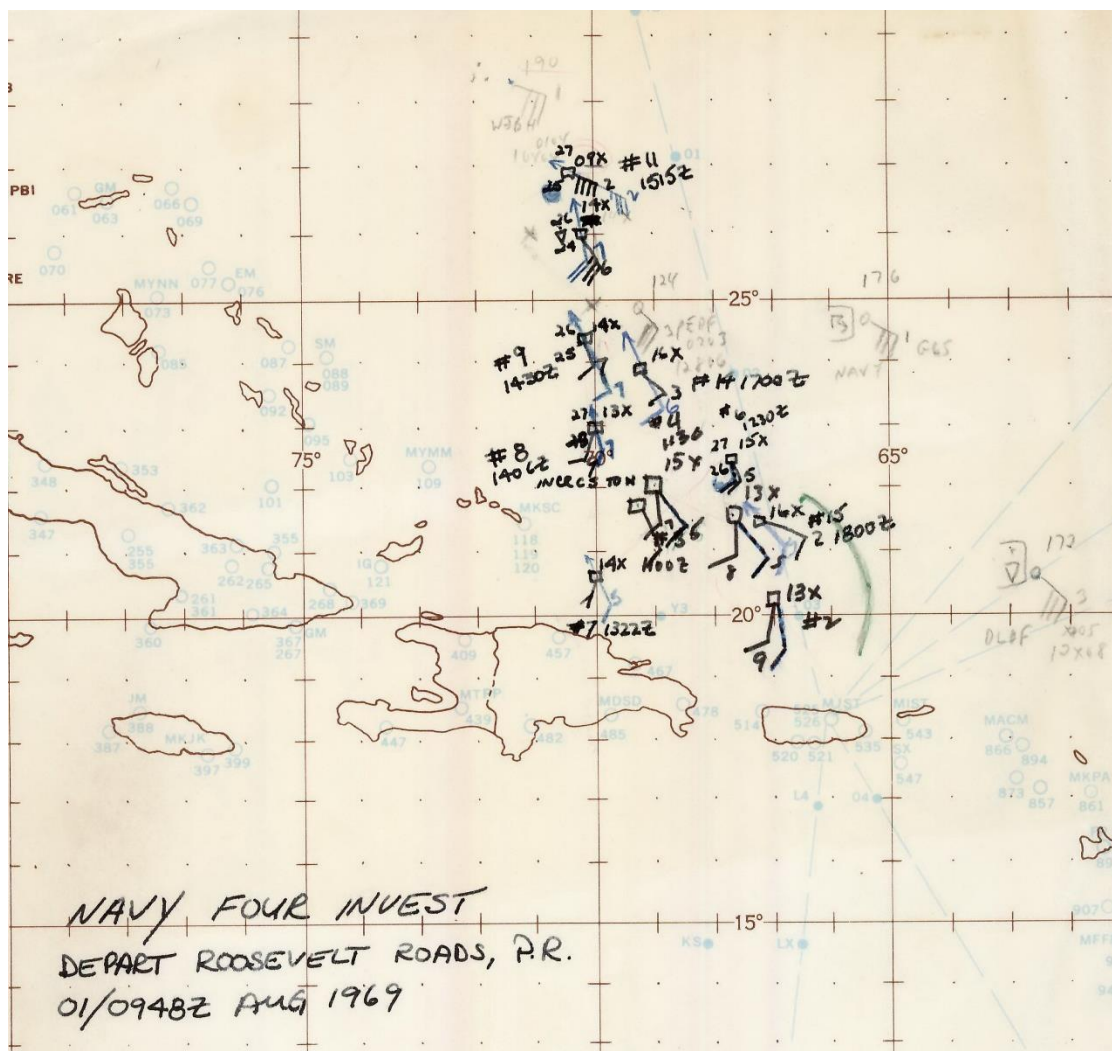
4. Please re-examine the 1 August data to better determine when the circulation might have re-formed. The aircraft that made the fix at 1541Z sent in a post-flight summary describing a closed circulation, and the pressure of 1008 mb would support one given the surrounding higher pressures. However, this report is a little hard to reconcile with the ship report of east winds 25 kt

to the southwest of the center on the 12Z MF maps. The recon plot for this mission is included below, and the ob of 1009 mb and 35 kt [at the surface] suggests a small center may have existed near the convection. Unfortunately, the plot looks incomplete, with no data west of the center.

**Agreed that this is consistent with the system reforming at 12Z. 1006 mb replaces the 1008 mb for 18Z on August 1<sup>st</sup>, based upon the aircraft observations.**

Also, the fix form for the 2330Z fix says “triangulation” as the fix method, which leaves doubt as to how good the central pressure might be. Please recheck the 1014 mb value if possible. In addition, the satellite imagery for that day shows a system that more resembles an open trough, although a small center near the convection cannot be ruled out.

**Given that the method was based on triangulation, it appears that the crew did not go through the center and thus 1014 mb is not a central pressure. 1014 mb is removed.**



fix was 15 n mi from the eye and other data shows the fix was a radar fix made at low level. The 1900Z fix was a penetration fix at 700 mb with a pressure of 1002 mb, but it is unclear whether this was an extrapolation or a dropsonde. The Committee does not have a problem with the proposed 60 kt intensity this day given the high pressures surrounding the system, the fast motion, and maximum flight-level winds of 65 kt at or above 700 mb between 1600-1900Z. However, the central pressure may need some adjustment.

**It is now noted that the 1600Z fix may instead be a radar fix with the 1002 mb being a peripheral pressure. However, given the 1900Z fix also obtained a 1002 mb central pressure, this value is retained at 1800Z.**

6. The Committee otherwise concurs with the proposed changes for this system.

**Agreed.**

1969 AL071969, Hurricane Blanche:

1. Please re-examine the genesis time for this system for the possibility of genesis near 1800 UTC 10 August. The satellite imagery on 10 August shows a fairly well-organized system, and since the system appears to be a tropical storm at 00Z 11 August an earlier genesis is not unreasonable. However, extrapolating the track backwards from 00Z 11 August would put the proposed genesis area near 26N 72W at 10/18Z, an area where there is no data. If an earlier genesis time cannot be definitively shown, please re-write the 10 August section to indicate that it is possible the tropical cyclone (TC) first formed late that day.

**Agreed to indicate genesis at 18Z on the 10<sup>th</sup>, though it could be earlier than that. This uncertainty is now mentioned in the writeup.**

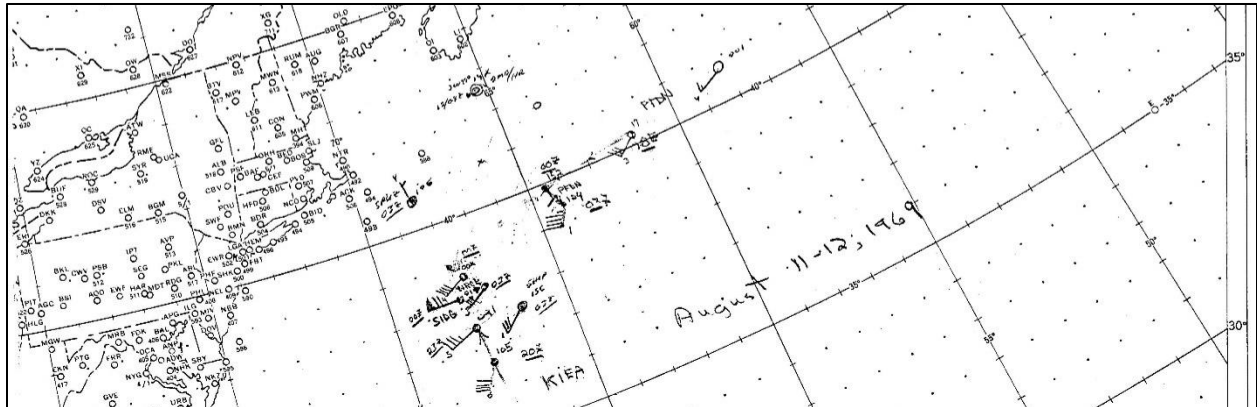
2. While increasing the winds to 55 kt at 12Z 11 August may be supported by the changes made at the other time that day, could you please better explain why 55 kt was chosen at that time instead of 45-50 kt?

**Agreed to show 50 kt instead. It's a bit arbitrary, given that the value is an interpolation.**

3. The Committee does **not** concur with the proposed change in the peak intensity of Blanche, as there are two published interpretations of the observations from the Swedish ship *Luossa*. The Monthly Weather Review season summary says the ship reported 80-kt winds **and** 992 mb, while the season summary in the National Climatological Data said that the ship reported 80 kt winds and was used to **estimate** a central pressure of 992 mb. Some clarification of this comes from the Rough Log of the Mariners Weather Log in the November/December, which states the *Luossa* reported 70-kt winds and a pressure of 1001 mb at 00Z 12 August. This appears to correspond to a report on a map in the Storm Wallets from the ship *SIDG* (see image below), and it is likely the 70-kt ob recorded in COADS. However, there is no record of this ob in the text report section of the Storm Wallets, nor is any other ob from this ship found there.

Given the above, and since the actual 80-kt report from the *Luossa* is not available for examination, the Committee favors the original 75 kt peak intensity.

**Agreed. Discussion about the Luossa is added into the writeup.**



4. A hand-scribbled note in the Storm Wallets shows Sable Island reported SW winds 37 kt gusting to 48 kt and a pressure of 997.3 mb at 12Z 12 August. Does Environment Canada have any information on the actual minimum pressure there during the passage of Blanche? The Committee notes that while this ob could be useful in establishing a central pressure, the fast forward motion of the hurricane means the normal 1-mb lower central for every 10-kt of wind criteria should be used with caution here.

**Unfortunately, Environment Canada has no additional information on these Sable Island reports. Agreed to add this station-based central pressure value in addition to the recon estimate of central pressure at the same time. A blend of the two gives 996 mb, which is incorporated into HURDAT.**

5. David Roth at WPC states that data from the Northern Hemisphere surface maps suggests that Blanche may have lasted more than a day longer as an extratropical cyclone than currently proposed. Please work with him to verify that these maps are correct in this scenario, and to come up with appropriate best track points if they are. Dave's work includes the following possible points:

Aug 13 12z 47.5N 38W 35 kts 1008 hPa  
Aug 13 18z 47N 34.5W 30 kts 1009 hPa  
Aug 14 00z 47N 31W 30 kts 1008 hPa  
Aug 14 06z 46.5N 27.5W 30 kts 1008 hPa  
Aug 14 12z 44N 23W 25 kts 1010 hPa  
Aug 14 18z 41N 18W 25 kts 1011 hPa

**Agreed to incorporate these dates/times into HURDAT.**

1969 AL081969, Hurricane Debbie:

1. Debbie was well sampled by research aircraft due to the Project Stormfury operations on 18 and 20 August, and the aircraft data likely has been published in reports and journal articles in detail likely not available in the NHC Storm Wallets. Have the proposed winds, pressures, and radii of maximum winds (RMWs), including the proposed peak intensity, been checked against the data in these publications to minimize discrepancies? Also, human caused or not, there may have been an eyewall replacement cycle (ERC) during the 18-20 August period that is not explicitly acknowledged in the re-analysis. Has this been factored in?

**There were no journal or ESSA publications on Debbie. However, the Colorado State University atlas by Gray and Shea (1976) did have flight data available on Debbie for the 18<sup>th</sup> and 20<sup>th</sup>. These have now been added into the daily summaries, though these did not change any of the HURDAT values. It is agreed that Debbie underwent an eyewall replacement cycle from early on the 18<sup>th</sup> through late on the 19<sup>th</sup>. This is now added into the daily summary. This inclusion did not necessitate any changes to the revised HURDAT.**

2. The Committee notes an ERC may also have occurred on 21-22 August, as a vortex message at 2225Z 21 August reported concentric eyewalls of 17 and 35 n mi diameter.

**It is possible that the concentric eyewalls reported by aircraft late on the day indicates that the system may have started to go through a concentric eyewall cycle. However, Debbie did not restrengthen after weakening began early on the 20<sup>th</sup>, so it does not appear that the system completed a second concentric eyewall cycle.**

3. Please review the extratropical portion of the life of Debbie. First, it is possible that transition was complete before 00Z 24 August? Second, David Roth at WPC again has information from the Northern Hemisphere surface maps suggesting that Debbie may have lasted longer than currently proposed as an extratropical low. Please work with him to verify that these maps are correct in this scenario, and to come up with appropriate best track points if they are. Dave's work includes the following points:

August 25 12z 60.5N 38.5W 55 kts 988 hPa – compromise between HURDAT & the map series  
August 25 18z 62.5N 33.5W 50 kts 990 hPa (system west of Greenland elongated into a trough)  
August 26 00z 63.5N 28W 45 kts 992 hPa  
August 26 06z 65N 18W 45 kts 993 hPa  
August 26 12z 66N 10W 40 kts 994 hPa  
August 26 18z 66N 7.5W 40 kts 995 hPa  
August 27 00z 66.5N 5W 40 kts 995 hPa  
August 27 06z 66N 0W 40 kts 995 hPa  
August 27 12z 64.5N 3.5E 35 kts 997 hPa  
August 27 18z – Absorbed by a stronger cyclone centered over southern Sweden

**Agreed to move up the extratropical transition to 18Z on August 23<sup>rd</sup>. Agreed to add in these additional points into HURDAT.**

4. The Committee otherwise concurs with the rest of the proposed changes.

**Agreed.**

1969 AL091969, Hurricane Camille: Previously re-analyzed.

**Thank, goodness.**

1969 AL101969, Unnamed/Suspect #14:

1. The Committee concurs with the removal of this system from HURDAT, but would like to have the MF maps for it in the archive.

**The microfilm maps have been added to the on-line archive and the binders.**

1969 AL111969, Unnamed/Suspect #15/Storm Wallet TD#21:

1. The Committee concurs with the removal of this system from HURDAT, but would like to have the MF maps for it in the archive. The Committee notes that a Navy recon found a 1008 mb pressure in the system on 24 August.

**The microfilm maps have been added to the on-line archive and the binders. The 1008 mb pressure has been added to the writeup.**

1969 AL121969, Tropical Storm Eve:

1. There is a typo at the start of the write-up. The HURDAT line added for 24 August says 25 August.

**Thanks. Corrected.**

2. Is there a need to have a pre-cursor extratropical low phase starting on 23 August?

**After further review, it appears that the extension back in time to 18Z August 24<sup>th</sup> captures when the system first had a well-defined low. Before this time, there was either no low or only an elongated low along the pre-existing frontal boundary.**

3. The Committee concurs with the proposed earlier genesis.

**Agreed.**

4. Please re-check to see if Eve or its remnants dissipated within a frontal zone.



**After further review, Eve dissipated within a pre-frontal trough. This is now so clarified in the text.**

5. The introduction to the write-up says that dissipation occurred 12 h earlier, while the 27 August write-up says it occurred 12 h later. Please correct whichever one is wrong.

**12 h earlier is right. This is now corrected in the writeup.**

6. The Committee concurs with the rest of the proposed changes.

**Agreed.**

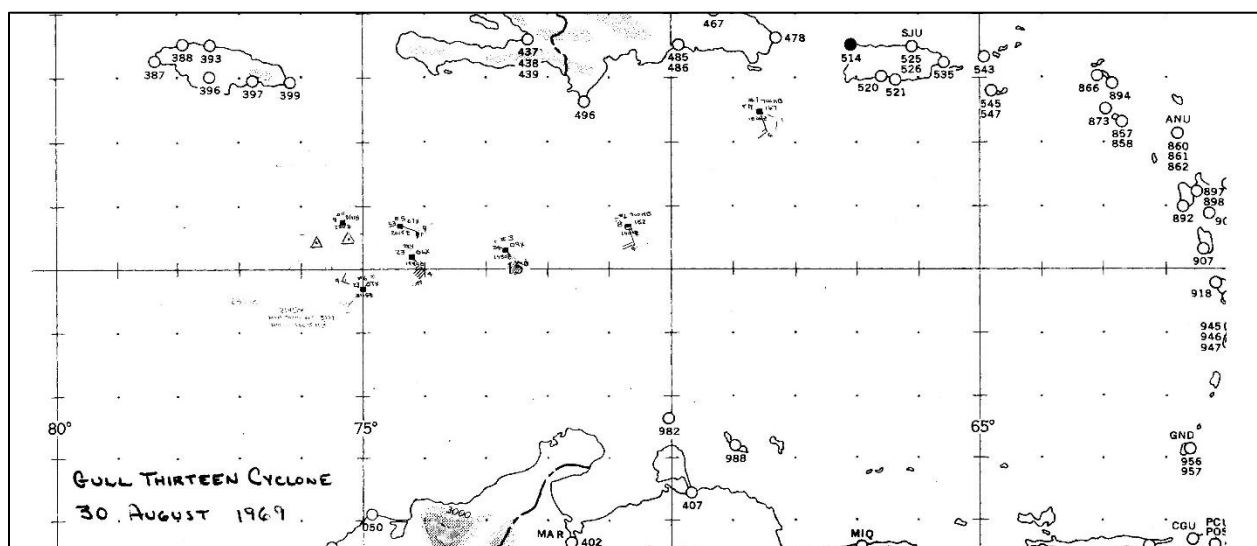
1969 AL131969, Hurricane Francelia:

1. The Committee does **not** occur with the proposed upgrade to a tropical storm at 18Z 29 August. While the aircraft found 1005 mb and the system was fast moving, the aircraft did not report any tropical-storm-force winds either from surface estimates or from flight level even in the post-flight summary. That, combined with the lack of strong winds from ships, does not justify the upgrade. A better set of intensities would be 30 kt at 29/18Z and 35 kt at 30/00Z.

**Agreed to retain 30 kt at August 29<sup>th</sup> 18Z and August 30<sup>th</sup> 00Z.**

2. Please re-examine the assertion that the aircraft fixes late on 30 August were not in the center and therefore reported wrong central pressures. Both fixes reported closed eyewalls of 30 n mi diameter, and the plot of the recon obs (see below) suggests that these positions are reasonable. One possible issue is that since both fixes were made from 700 mb, the vortex might not have been fully developed at that level.

**Agreed to indicated that a possible issue is that since both fixes were made from 700 mb, the vortex might not have been fully developed at that level.**



3. The Committee notes that while the 1006 mb aircraft fix at 01/1220Z has a high pressure compared to the prior and subsequent fixes, the value passes quality control checks. One possible reason for a discrepancy is that this fix was made from 700 mb, while the other fixes in question were made from low level.

**Agreed to note that a possible reason for a discrepancy is that this fix was made from 700 mb, while the other fixes in question were made from low level.**

4. The Committee notes that the aircraft fixes of 993 mb and 990 mb early on 2 September have extrapolated pressures of 987 mb and 983 mb using today's extrapolation formulas.

**These values are added in, instead of the reported values. These allow for 5 kt stronger system to be analyzed at 00Z and 06Z.**

5. The Committee notes that the intensifying subset of the wind-pressure relationships was used intensity estimation for 2 September, but not for 1 September. Why was this, and what are the intensity estimates using the intensifying subset on 1 September? The Committee notes that the 1-2 September period was an episode of rapid intensification, and it is probably a good idea to re-examine all of the intensities on those days in that light.

**The intensity values between the whole sample south of 25N and those that are intensifying are the same for those 980 mb or shallower. The spreadsheet is provided below:**

Central	Brown	Brown	Brown	Brown	Brown	Brown	Neumann	Dvorak
Pressure	S 25N	N 25N	S 25N I	S 25N W	N 25N I	N 25N W	N 35N	
1008	30	28	28	32	29	27	32	30
1007	32	30	31	35	31	29	35	
1006	35	32	34	37	33	32	37	
1005	37	34	36	39	36	33	40	35
1004	39	36	38	41	38	35	42	
1003	41	38	41	43	40	37	44	
1002	43	40	43	45	42	39	45	
1001	45	42	45	47	44	41	47	
1000	47	44	47	48	45	42	49	45
999	49	45	49	50	47	44	50	
998	51	47	50	52	49	45	52	
997	53	49	52	54	51	47	53	
996	54	50	54	55	52	48	55	
995	56	52	56	57	54	50	56	
994	58	53	58	58	56	51	58	55
993	59	55	59	60	57	53	59	
992	61	56	61	61	59	54	60	
991	62	58	62	63	60	56	61	
990	64	59	64	64	62	57	63	
989	65	61	65	65	63	58	64	
988	67	62	67	67	65	60	65	

987	68	64	68	68	66	61	66	65
986	70	65	70	69	68	62	67	
985	71	66	71	71	69	63	68	
984	72	68	73	72	70	65	69	
983	74	69	74	73	72	66	70	
982	75	70	76	74	73	67	71	
981	76	71	77	76	74	68	72	
980	78	73	78	77	76	69	73	
979	79	74	80	78	77	71	74	77
978	80	75	81	79	78	72	75	
977	81	76	82	80	80	73	76	
976	83	77	84	81	81	74	77	
975	84	79	85	83	82	75	78	
974	85	80	86	84	83	76	79	
973	86	81	87	85	85	77	80	
972	88	82	89	86	86	78	80	
971	89	83	90	87	87	80	81	90
970	90	84	91	88	88	81	82	
969	91	86	92	89	89	82	83	
968	92	87	93	90	91	83	84	
967	93	88	95	91	92	84	85	
966	94	89	96	92	93	85	85	
965	96	90	97	93	94	86	86	
964	97	91	98	94	95	87	87	
963	98	92	99	95	96	88	88	102
962	99	93	100	96	97	89	88	
961	100	94	101	97	98	90	89	
960	101	95	102	98	100	91	90	
959	102	96	104	99	101	92	91	
958	103	97	105	100	102	93	91	
957	104	98	106	101	103	94	92	
956	105	99	107	102	104	95	93	
955	106	100	108	103	105	96	93	115
954	107	101	109	104	106	97	94	
953	108	102	110	105	107	98	95	
952	109	103	111	106	108	99	96	
951	110	104	112	107	109	100	96	
950	111	105	113	108	110	101	97	
949	112	106	114	108	111	101	98	
948	113	107	115	109	112	102	98	
947	114	108	116	110	113	103	99	115
946	115	109	117	111	114	104	99	
945	116	110	118	112	115	105	100	
944	117	111	119	113	116	106	101	
943	118	112	120	114	117	107	101	
942	119	113	121	115	118	108	102	
941	120	114	122	115	119	109	103	
940	121	115	123	116	120	110	103	
939	122	116	124	117	121	110	104	

938	123	116	125	118	122	111	104	
937	124	117	126	119	123	112	105	
936	125	118	127	120	124	113	106	
935	125	119	128	120	125	114	106	127
934	126	120	129	121	126	115	107	
933	127	121	130	122	127	116	107	
932	128	122	130	123	128	116	108	
931	129	123	131	124	128	117	109	
930	130	124	132	124	129	118	109	
929	131	124	133	125	130	119	110	
928	132	125	134	126	131	120	110	
927	133	126	135	127	132	121	111	
926	133	127	136	128	133	121	111	
925	134	128	137	128	134	122	112	
924	135	129	138	129	135	123	112	
923	136	130	139	130	136	124	113	
922	137	130	139	131	137	125	114	
921	138	131	140	132	138	125	114	140
920	139	132	141	132	138	126	115	
919	139	133	142	133	139	127	115	
918	140	134	143	134	140	128	116	
917	141	135	144	135	141	129	116	
916	142	135	145	135	142	129	117	
915	143	136	146	136	143	130	117	
914	144	137	146	137	144	131	118	
913	144	138	147	138	144	132	118	
912	145	139	148	138	145	133	119	
911	146	139	149	139	146	133	119	
910	147	140	150	140	147	134	120	
909	148	141	151	140	148	135	120	
908	148	142	151	141	149	136	121	
907	149	143	152	142	150	136	121	
906	150	143	153	143	150	137	122	155
905	151	144	154	143	151	138	122	
904	152	145	155	144	152	139	123	
903	152	146	156	145	153	139	123	
902	153	147	156	145	154	140	124	
901	154	147	157	146	155	141	124	
900	155	148	158	147	155	142	125	
899	155	149	159	148	156	142	125	
898	156	150	160	148	157	143	126	
897	157	150	160	149	158	144	126	
896	158	151	161	150	159	145	127	
895	159	152	162	150	159	145	127	
894	159	153	163	151	160	146	128	
893	160	153	163	152	161	147	128	
892	161	154	164	152	162	148	129	
891	162	155	165	153	163	148	129	
890	162	156	166	154	163	149	129	170

889	163	156	167	154	164	150	130
888	164	157	167	155	165	150	130
887	165	158	168	156	166	151	131
886	165	159	169	156	166	152	131
885	166	159	170	157	167	153	132
884	167	160	170	158	168	153	132
883	168	161	171	158	169	154	133
882	168	162	172	159	170	155	133
881	169	162	173	160	170	155	133
880	170	163	173	160	171	156	134
879	170	164	174	161	172	157	134
878	171	164	175	162	173	157	135
877	172	165	176	162	173	158	135
876	173	166	176	163	174	159	136

6. What is the source of the 975 mb ship report at 02/22Z that is listed as WALLET, and was any wind observation available for this report? A search of the online Storm Wallet did not find this ob.

**This was included erroneously and has now been removed.**

7. Please re-examine the landfall intensity in Belize on 3 September. The eye apparently passed just north of the town of Punta Gorda, which reported a minimum pressure of 991 mb and no lull. In addition, the estimated strongest winds of 100-110 mph occurred after the eye had passed. Thus, even given the uncertainty of the estimated winds, there is a chance that the winds were stronger than the 85 kt currently in HURDAT. Please contact the Meteorological Service of Belize for their input on the landfall intensity and any additional data they may have.

**The Meteorological Service of Belize has no additional information regarding this system. More discussion is now included regarding this uncertainty.**

8. Pending the above, the Committee concurs with the rest pf the proposed revisions.

**Agreed.**

1969 AL141969, Unnamed/Suspect #16:

1. The Committee concurs with the removal of this system from HURDAT, but would like to have the MF maps for it in the archive. The Committee notes that satellite imagery suggests this system may have had some subtropical characteristics.

**The microfilm maps have been added in. The comment about the system has been added in.**

1969 AL151969, Tropical Depression:

1. The Committee concurs with the proposed changes. It is possible this system did not actually meet the criteria of being a depression, but there was no consensus to remove it.

**Agreed to retain the system, though evidence is not strong.**

1969 AL161969, Hurricane Gerda:

1. The Committee concurs with the proposed changes to the genesis time.

**Agreed.**

2. On September 8, there was a Navy aircraft fix of 1000 mb at 1245Z. Both this and the fix at 1112Z were apparently at low level.

**The 1245Z fix is now added in and used for September 8<sup>th</sup>.**

3. The Storm Wallet for Gerda suggests that peak wind at the Nantucket Light Vessel was near 09/1830Z, with the winds from the northwest just after the center passed (see image below). The 09/1800Z ob report was winds SE 90 kt and a pressure of 985.4 mb. It may be worthwhile to contact NCEI to see if a detailed record of Gerda's passage over the station is available.

ALCKT A BOS AT 1830Z NANTUCKET SHOALS LIGHSHIP SENT IN PLAIN LANGUAGE WIND NORTHWEST 110 TO 125 KNOTS.
--

**Detailed hourly observations for this light station are available on NCEI's EV2 website. These were typically every three hours, but did go to hourly observations from 14Z-19Z.**

4. Please re-examine the peak intensity of Gerda as it passed over the Nantucket Light Vessel. If the reported sustained winds of 110 kt reduce to 107 kt at 10 m, then should the peak intensity be at least 105 kt and possibly the 110 kt value currently in HURDAT? Yes, these winds are well outside the expectations based on the observed central pressure, but not outside of what might be expected for a very fast-moving hurricane. It should be noted that the Nantucket Light Vessel obs clearly show that Gerda had a TC-type inner core as it passed over the station.

**Agreed to make the intensity as 105 kt.**

4a. On a related note, is the wind-averaging period for the Nantucket Light Vessel known? This will help in the evaluation its wind data.

**They used what was typical in the 1960s: fastest mile.**

5. The 70 kt intensity for 10/00Z looks like too fast of a drop off, especially if the 09/18Z intensity was more than 100 kt. What was the time that the 72 kt winds were recorded in

Yarmouth? Would that help refine how fast Gerda weakened after peak intensity? Also, please look for other minimum pressures along the path of Gerda in southeastern Canada.

**Unfortunately, no time is available for the 72 kt winds from Environment Canada, nor do they have any minimum pressures. Agreed to boost the 10<sup>th</sup>/00Z intensity to 75 kt.**

6. Please coordinate with David Roth at WPC on the possible extension of Gerda's life as an extratropical cyclone. Dave's possible points include:

AL1669 GERDA	091006	1969	48.5	66.0	55	982	-99	-99	1006	280	-99	-99	-99	-99	-99	-99	-99	-99	-99	E	
AL1669 GERDA	091012	1969	53.0	65.0	40	984	-99	-99	1004	340	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091018	1969	56.0	63.5	40	982	-99	-99	998	285	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091100	1969	59.0	62.0	45	976	-99	-99	996	325	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091106	1969	61.0	61.0	45	977	-99	-99	1012	820	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091112	1969	62.0	60.0	45	978	-99	-99	1008	690	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091118	1969	63.5	60.0	45	977	-99	-99	1000	545	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091200	1969	65.0	62.0	40	978	-99	-99	992	410	-99	-99	-99	-99	0	0	0	0	0	0	E
AL1669 GERDA	091206	1969	66.5	64.0	40	980	-99	-99	984	95	-99	-99	-99	-99	0	0	0	0	0	0	E

**These points have been added into Gerda's database.**

7. The Committee otherwise concurs with the proposed changes.

**Agreed.**

1969 AL171969, Hurricane Holly:

1. The Committee consensus is that not only should the genesis be moved up, but that given the well-organized cloud pattern in satellite imagery on 13 September the system should be started as a tropical depression at 1800 UTC that day even though surface observations are scarce.

**Agreed. System is now begun at 18Z on the 13<sup>th</sup>.**

2. There is a typo in the 15 September aircraft highlights: The eye diameter on the 1745Z fix was 20 n mi instead of 10 n mi. The correct value is already present in the discussion section.

**Corrected.**

3. In the 19 September “Maps and Old HURDAT” section, “64=0” should probably be “64.0”.

**Corrected.**

4. The Committee otherwise concurs with the proposed changes.

**Agreed.**

1969 AL181969, Unnamed/Suspect #17:

1. The Committee concurs with the removal of this system, which was operationally called TD #28, from HURDAT. The available surface maps suggest a decent circulation existed, but the satellite imagery indicates it lacked sufficient organized convection to be considered a TC.

**Agreed.**

1969 AL191969, Tropical Depression/Storm Wallet TD#29:

1. Are there any land station observations of note from the landfall area in Florida?

**A search was made for stations in Florida from NCEI's EV2 website. Stations in Panama City and Pensacola show no winds greater than 20 kt or pressure lower than 1009 mb. However, there were no observations between those two locations.**

2. The Committee concurs with the proposed changes, and it agrees that the system could have been a tropical storm at some point. However, the data is insufficient to justify an upgrade.

**Agreed.**

3. Please coordinate with David Roth at WPC about a possible significant extension of the track as a low/extratropical system over the eastern United States. Dave's possible points include:

AL1969 TWENTY-NI 092300 1969 31.8 86.2 15 1012 -99 -99 1013 85 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092306 1969 31.6 85.8 15 1013 -99 -99 -99 -99 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092312 1969 31.4 85.4 15 1012 -99 -99 -99 -99 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092318 1969 31.2 84.8 15 1011 -99 -99 1012 80 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092400 1969 31.2 84.0 15 1009 -99 -99 1010 75 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092406 1969 32.2 83.0 15 1008 -99 -99 1010 150 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092412 1969 33.2 81.5 15 1007 -99 -99 1008 50 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092418 1969 34.2 79.8 15 1007 -99 -99 -99 -99 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092500 1969 34.7 78.7 15 1006 -99 -99 1007 55 0 0 0 0 0 0 0 0 0 0 0 0 L  
AL1969 TWENTY-NI 092506 1969 35.1 77.6 20 1006 -99 -99 1007 80 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092512 1969 35.5 76.5 20 1006 -99 -99 1009 155 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092518 1969 36.5 75.0 20 1007 -99 -99 1009 135 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092600 1969 37.5 73.5 20 1008 -99 -99 1009 95 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092606 1969 38.0 72.0 20 1009 -99 -99 -99 -99 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092612 1969 38.5 70.5 20 1009 -99 -99 1009 105 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092618 1969 39.0 69.0 20 1010 -99 -99 -99 -99 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092700 1969 40.0 68.0 20 1009 -99 -99 1012 80 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092706 1969 41.0 67.0 20 1008 -99 -99 1012 145 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092712 1969 42.0 66.0 20 1009 -99 -99 1012 90 0 0 0 0 0 0 0 0 0 0 0 0 E  
AL1969 TWENTY-NI 092718 1969 43.0 65.5 20 1010 -99 -99 1014 180 0 0 0 0 0 0 0 0 0 0 0 0 E



AL1969 TWENTY-NI 092800 1969 44.5 65.0 25 1009 -99 -99 1011 100 0 0 0 0 0 0 0 0 0 0 0 E  
 AL1969 TWENTY-NI 092806 1969 46.5 65.0 35 1008 -99 -99 -99 -99 -99 -99 -99 -99 0 0 0 0 0 0 0 0 E  
 AL1969 TWENTY-NI 092812 1969 48.5 64.0 35 1008 -99 -99 -99 -99 -99 -99 -99 -99 0 0 0 0 0 0 0 0 E

**After a further review, the system weakened to a broad area of low pressure over Florida without a closed circulation around 18Z on the 23<sup>th</sup>. While the trough continued for a few more days, the subsequent re-formation as an extratropical gale over New Brunswick, Canada on the 28th is a separate cyclone and thus not included into HURDAT.**

1969 AL201969, Hurricane Inga:

1. There are a couple of typos in the 20 September write-up: 1) In the Ship highlights – “looks bias”; 2) The first sentence of the ATSR section, which looks like something got left out.

**Fixed.**

2. The 1001 mb pressure on the aircraft fix at 15Z 21 September is based on a dropsonde. However, the extrapolated pressures using the 700 and 850 mb data on the drop are 1003-1004 mb, and the initial low-level penetration pressure was 1004 mb. Perhaps the intensity near this time should be based on a 1004 mb pressure?

**Agreed to use 1004 mb pressure.**

3. In the 22 September write-up, please better explain the importance of how far the system was from landmasses in regard to the positions of the aircraft fixes.

**The far distance of the aircraft reconnaissance mission to the closest landmass could make navigation of longitude more difficult. This is now clarified.**

4. The Committee notes there are additional aircraft fixes on 23 September, but given the poor organization of the storm they may not be worth mentioning in the write-up.

**Agreed.**

5. On 23 September, please better explain the use of the wind-pressure relationships and the aircraft winds in determining the intensity. The Committee notes that on this day a 1006 mb pressure is used to justify 35 kt, while on 24 September it is used to justify 30 kt.

**On the 23<sup>rd</sup>, the 1006 mb was accompanied by 35 kt visually estimated surface winds, while on the 24<sup>th</sup> there were only 27 kt estimated. This is now clarified in the writeup.**

6. Please see if the aircraft fix at 2245Z 24 September was a penetration fix or a radar fix.

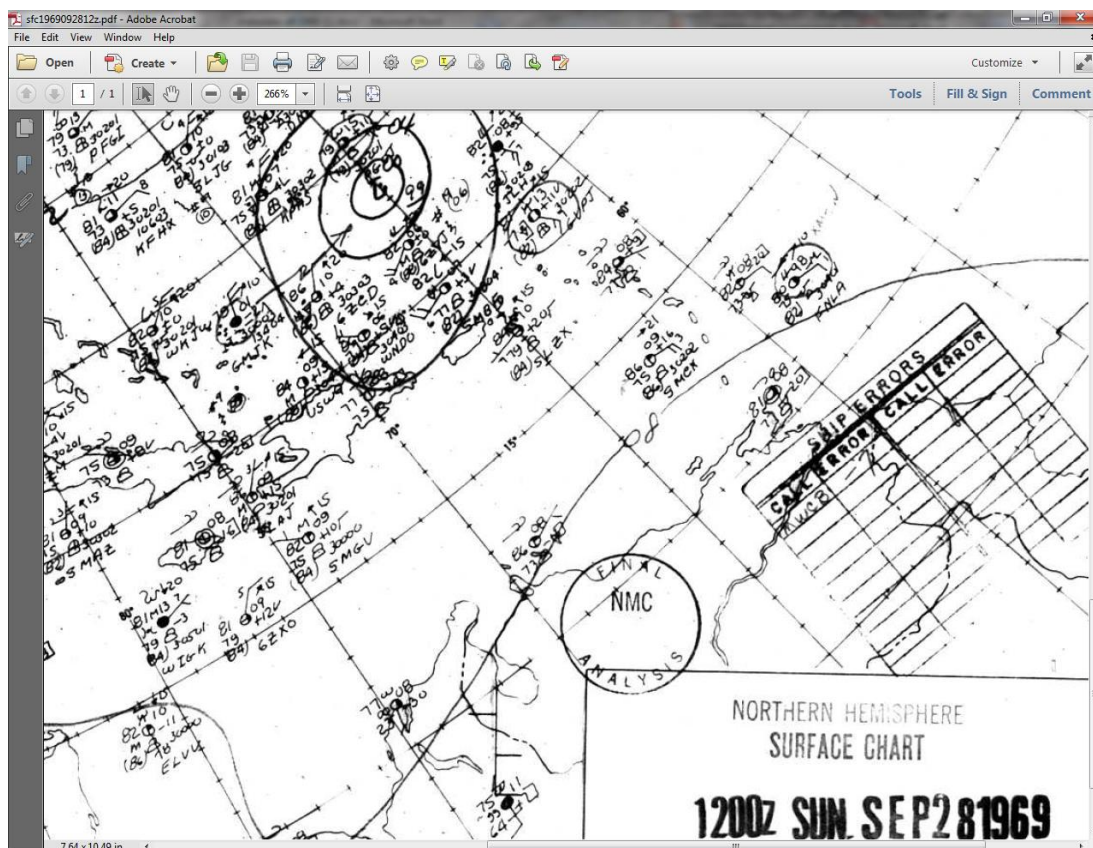
**It was a penetration fix.**

7. The Northern Hemispheric Weather map for 12Z 26 September shows an ob near the center of Inga that is obscured by the low symbol drawn on the map. A check through the obs spreadsheet shows a ship near 21N 63W (close to the HURDAT center) with 1009 mb and winds NW 5 kt. Please quality control this ship to see if this ob can be used to estimate a central pressure.

**Agreed to add in 1008 mb as a central pressure for 12Z 26<sup>th</sup> based upon this ship.**

8. The Northern Hemispheric Weather map for 12Z 28 September has an observation from a ship (call sign GMJK) with a pressure of 1001 mb and northerly winds of 20 kt (see below). This ship is plotted on the map well to the west of Inga, with an arrow drawn to a position of 23.1N 66.8W, and it was apparently used to analyze a central pressure of 999 mb at that time. Please find as much information as can be found about this ob, including why it is not in COADS.

**No additional information is available on this ship. Many ships available in real-time to the National Hurricane Center are not contained in COADS. Only those historic ship observations that have been digitized are in COADS.**



9. Was there any consideration given to making the cyclone subtropical during part of the 26-28 September period since it was apparently under an upper-level low?

**Agreed to mention that the system may have been subtropical during these three days.**

10. Please better explain the reasoning for the proposed intensity changes on 30 September, given the magnitude of the proposed reductions.

**Penetration center fixes on the 30th indicated that the central pressure of the tropical storm fluctuated between 990-994 mb between 0217Z and 1230Z. 992 mb central pressure supports an intensity of 56 kt from the north of 25N pressure-wind relationship. In part due to the slow motion of the system, an intensity of 50 kt is analyzed between 00Z and 12Z, down from 65 kt at 00Z, 70 kt at 06Z and 75 kt at 12Z, originally in HURDAT, major intensity changes.**

11. Was the RMW a factor in the proposed intensity changes on 1 October.

**Yes, this is not so noted in the writeup.**

12. As with point 10, please better explain the reasoning for the proposed intensity changes on 2-3 October.

**Penetration center fixes indicated that the central pressure of the tropical storm fluctuated between 986-989 mb between 2217Z on the 1st and 1730Z on the 2nd. A central pressure of 986 mb suggests maximum surface winds of 65 kt from the north of 25N pressure-wind relationship. In part because of the large RMW, an intensity of 60 kt is selected between 00Z and 18Z on the 2nd, down from 80 kt originally shown in HURDAT, major intensity changes.**

13. Please investigate the RMW near 00Z 4 October and see if it is small enough to justify making a system a hurricane at that time when combined with the other data.

**Agreed to indicate hurricane intensity at 00Z instead of 06Z.**

14. Please re-examine the RMW and the derived intensities for two of the fixes on 5 October. For the 1204Z fix, the eye diameter is given as 5 n mi. However, recon data in the Storm Wallet reported the maximum surface winds as being 50 n mi from the center and the maximum flight-level winds as 65 n mi from the center, which are not consistent with a 5-n mi wide eye. For the 21 Z fix, the eye diameter is given as 15 n mi, while the post-flight summary indicates that the maximum winds were 30-40 n mi from the center – again a mismatch.

**Based on the system having a large RMW, not small, a peak intensity of 95 kt is analyzed on the 5<sup>th</sup> instead of 100 kt. This minor change means that Inga did not become a major hurricane. Peak intensity is now 95 kt, versus 100 kt originally.**

15. Did Inga undergo a partial extratropical transition on 6 October, as suggested by satellite imagery?

**Agreed to indicate that Inga may have undergone a partial extratropical transition on the 6<sup>th</sup>.**

16. In the write-ups for 7-9 October and 11-12 October, there are several occurrences of “an maximum” that should be corrected.

**Corrected.**

17. The Committee concurs with the other proposed changes.

**Agreed.**

1969 AL211969, Unnamed Hurricane:

1. In the Discussion section, is the transition to a subtropical storm supposed to be on the 21<sup>st</sup> or the 22<sup>nd</sup>?

**This is now clarified that the system began as an extratropical cyclone, then transitioned into a subtropical cyclone around 12Z on the 2<sup>nd</sup>.**

2. The Committee concurs with the proposed changes.

**Agreed.**

1969 AL221969, Unnamed Tropical Storm:

1. Is the frontal wave shown on the MF maps for 21 September related to the subsequent TC? If so, please consider adding a couple of days of extratropical low to the early portion of the track. If not, please show in the write-up why they are not the same system.

**On the 21<sup>st</sup>, it does not appear that the system had a surface low associated with the frontal boundary. On the 22<sup>nd</sup>, the observations are sparse, so it is unknown whether a surface low had formed yet. Thus beginning the system at 12Z on the 23d is retained (which is 24 hours earlier than HURDAT had shown).**

2. The Committee consensus is that there is not sufficient organized convection on the 24 September satellite images to call the system subtropical at that time. Suggest delaying the transition to at least 00Z 25 September.

**Agreed to delay subtropical transition to 00Z 25<sup>th</sup>.**

3. Please give a better basis for the proposed reduction of intensity to 50 kt on the 27<sup>th</sup> given the lack of observations near the center. Also, “60<sup>th</sup>” should probably be “60 kt”.

**Agreed to retain the original intensities on the 27<sup>th</sup>.**

4. The Committee otherwise concurs with the proposed changes.

**Agreed.**

WD FORM 920-2  
(11-68)

U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU  
COMPUTATION AND TABULATION SHEET

29 SEP 1969		30 SEP 69		1 OCT 69		30 SEP 69		Computed by		Date		Checked by		Date		Sheet of	
016	016	016	016	016	016	016	016	016	016	016	016	016	016	016	016	016	016
1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69	30 SEP 69
0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100	0100
0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200	0200
0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300	0300
0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400	0400
0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500	0500
0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600	0600
0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700	0700
0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800
0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900	0900
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100

USCOM-WE-507



1. The MWR excerpt on 6 October says that during its early life Kara was embedded in a cold upper-level trough. Does that apply to the 6-9 October period, or later in the cyclone's lifetime? If the former, perhaps the system needs to be considered subtropical during its formative stages?

**Based upon the imagery, it's more likely that the system was a sheared tropical cyclone. However, the possibility that the system was subtropical on October 7-9 is added into the discussion.**

2. Please provide a better basis, other than a higher central pressure, for saying that the plane that made the fix at 10/06Z missed the center. The Committee notes that the same plane made the 10/12Z fix.

**A central pressure of 1006 mb was reported at 06Z on the 10th but it appears that the center was missed based on synoptic observations and lower central pressures observed by aircraft observed both late on the 9th and later on the 10th.**

3. The Committee concurs with the proposed subtropical phase on 12-14 October.

**Agreed.**

4. The Committee notes there is what looks like a 60-kt ship report on the MF map for 00Z 12 October. Is this correct, and is the ob reliable? If so, does the intensity near this time need revision?

**The 60 kt ENE with 1008 mb observation at 00Z from microfilm does not appear to be reliable for winds, given that two nearby observations only indicate 30 kt. Thus it is not used in Kara's intensity assessment.**

5. In the 13 October discussion, "intensity on structure" should probably be "intensity or structure".

**Agreed.**

6. The Committee notes there was an aircraft fix at 14/2050Z with a central pressure of 987 mb.

**Yes, not all aircraft fixes are shown in the Aircraft Highlights sections. Typically, just the fix closest to each synoptic time is indicated.**

7. The Committee notes that the satellite imagery on 17 October shows significant organization to the convection, and the aircraft that made the 17/1710Z fix reported banding to the northeast of the center. So, while the Committee concurs with moving up the time of extratropical transition, it looks like 17/18Z is too early. Please consider 18/00Z instead.

**Agreed to move the extratropical transition to 18<sup>th</sup> at 00Z.**

7a. On a related note, please see if the temperature data recorded by the aircraft can help diagnose the thermal structure near 17/18Z.

**The temperature data from the aircraft does not suggest a significant north-south gradient across the system late on the 17<sup>th</sup>.**

1969 AL261969, Hurricane Laurie:

1. The Committee notes that the aircraft mission on 17 October reported 1006 mb with 10 kt winds near the center, although no vortex message was sent. Would it be useful to add this to the write-up?

**Yes, a 1005 mb central pressure is now added into HURDAT for 18Z.**

2. Please re-examine the aircraft data for 19 October, particularly in light of the assertion that some of the fixes missed the center. Research aircraft reported that the 12000 ft center was about 60 n mi northeast of the surface center at 15Z, and that the 18000 ft center was about 70 n mi southeast of the surface center near 19Z. In addition, one of the ESSA research aircraft extrapolated a pressure of 999.6 mb at 2130Z. Please revise the write-up to reflect the complexities of the aircraft data, and please adjust the intensities for this day if necessary.

**The 2130Z central pressure of 1000 mb has been added in and used for HURDAT at 00Z on the 20<sup>th</sup>. No change needed for intensity. The displacement of upper-level centers and surface centers are now discussed as well.**

3. Please re-examine **all** of the proposed intensities from 20/00Z to the minimum pressure near 21/12Z. First, none of the intensity estimates on 20 October seem to use the intensifying subset of the wind-pressure relationships, which looks problematic given the strengthening that was underway. Second, there seems to be no reason not to keep the original 65 kt HURDAT winds at 20/18Z given a) a 60-kt ship report, and b) a 987 mb pressure along with 85-kt surface and flight-level winds (640 m) 20 n mi east of the center reported by an ESSA research aircraft. (Yes, the aircraft winds of this era have issues, but this was apparently a research aircraft where the flight-level winds are hopefully less unreliable.) Third, the aircraft fix with 973 mb at 21/1136Z reported 700-mb flight-level winds of 105 kt 30 n mi southeast of the center (with all appropriate caveats due winds from an Air Force Hurricane Hunter of that era), and the surface RMW would likely be smaller than 30 n mi given normal slopes of the eyewall. Based on this, while some reduction from the wind-pressure relationships might be appropriate due to RMW size and slow motion, the proposed reduction to 75 kt at 21/12Z is too much. 85 kt is probably more appropriate.

**The intensifying subsets of the pressure-wind relationship were used on both the 20<sup>th</sup> and 21<sup>st</sup>, but this was not so stated on the 20<sup>th</sup>. This is now so clarified. Agreed to keep the original 65 kt at 18Z on the 20<sup>th</sup>. A central pressure of 973 mb suggests maximum surface winds of 85 kt from the north of 25N and 87 kt south of 25N pressure-wind relationship intensifying subsets. An eye diameter of 28-53 n mi suggests an RMW of**



**about 21-40 n mi and the climatological value is 19 n mi. Based on a slow forward speed of about 8 n mi, a large RMW, and somewhat weighting the 105 ft flight-level winds, an intensity of 80 kt is analyzed at 00Z on the 21st, up from 70 kt originally in HURDAT, a minor intensity change. The same value is assigned at 06Z and 12Z.**

4. There are a couple of typos in the ATSR excerpt for 21 October: “Of 90 kt” and “ab out”

**Corrected.**

5. At 00Z 22 October, given the 70 kt ship report and the 73 kt intensity estimate from the wind-pressure relationship, maybe 75 kt is a better choice than 70 kt?

**Agreed.**

6. The Committee otherwise concurs with the proposed changes.

**Agreed.**

1969 AL271969, Unnamed Tropical Storm:

1. The Committee notes that while it concurs with the proposed earlier tropical transition on 29 October, the 100 n mi RMW at the time is still quite large by TC standards.

**This is now so noted.**

2. The Committee has concerns that the proposed ending of the track on 31 October is too early. Please work with Dave Roth at WPC for the best way to incorporate the data he has gathered through 18Z 1 November into the track. Dave’s proposed information includes:

```
AL2869 NOT NAMED 103100 1969 38.5 45.5 40 990 -99 -99 1002 135 -99-99-99-99 0 0 0 0 0 0 0 0 *
AL2869 NOT NAMED 103106 1969 42.5 46.0 40 992 -99 -99 1001 105 -99-99-99-99 0 0 0 0 0 0 0 0 *
AL2869 NOT NAMED 103112 1969 45.0 45.0 40 994 -99 -99 1000 155 -99-99-99-99 0 0 0 0 0 0 0 0 E
AL2869 NOT NAMED 103118 1969 47.0 42.5 35 996 -99 -99 1002 105 -99-99-99-99 0 0 0 0 0 0 0 0 E
AL2869 NOT NAMED 110100 1969 48.5 40.0 35 998 -99 -99 1002 115 -99-99-99-99 0 0 0 0 0 0 0 0 E
AL2869 NOT NAMED 110106 1969 50.5 37.5 30 1000 -99 -99 1005 135 0 0 0 0 0 0 0 0 0 E
AL2869 NOT NAMED 110112 1969 52.5 30.0 30 1001 -99 -99 1004 50 0 0 0 0 0 0 0 0 0 0 E
AL2869 NOT NAMED 110118 1969 55.0 22.0 30 1002 -99 -99 1004 100 0 0 0 0 0 0 0 0 0 0 E
```

**These are now incorporated into the best track for this unnamed storm.**

1969 AL281969, Unnamed Hurricane:

1. Even allowing for the bias of the 78-kt ship report on 1 November, it is likely there are enough 60 kt ship reports to justify raising the intensity to 65 kt for part of the time 31 October – 1 November.

**Agreed.**

2. Please better justify the proposed peak intensity of 80 kt on 5 November. Why was this value chosen as compared to the 65 kt originally in HURDAT, or 70 or 75 kt? What is the quantitative basis for it?

**Satellite images showed a small tropical cyclone with a well-organized eye. The highest winds reported on this date were 60 kt, but based on the satellite signature of the tropical cyclone and synoptic data on the 6th, an intensity of 80 kt is analyzed at 12Z and 18Z on the 5th, up from 60 kt originally in HURDAT, major intensity changes.**

3. Any land station highlights from the Azores?

**The two reporting stations in the Azores peaked at only 30 kt at the synoptic time observations available within the Historical Weather Maps and the microfilm. Unfortunately, no additional observations are available.**

4. Please coordinated with Dave Roth at WPC on possible additions to both the beginning and ending of the track of this system. Dave's possible points include:

AL2969 NOT NAMED 102812 1969 38.0 69.0 20 1016 -99 -99 1018 65 0 0 0 0 0 0 0 0 0 0 0 E  
AL2969 NOT NAMED 102818 1969 38.0 68.5 25 1014 -99 -99 1017 100 0 0 0 0 0 0 0 0 0 0 0 E  
AL2969 NOT NAMED 102900 1969 38.5 67.5 30 1012 -99 -99 1017 155 0 0 0 0 0 0 0 0 0 0 0 E  
AL2969 NOT NAMED 102906 1969 38.5 65.5 35 1009 -99 -99 1014 165 -99-99-99-99 0 0 0 0 0 0 0 0 0 E  
AL2969 NOT NAMED 102912 1969 39.8 62.5 40 1005 -99 -99 1012 135 -99-99-99-99 0 0 0 0 0 0 0 0 0 E

and

AL2969 NOT NAMED 110718 1969 37.0 22.0 40 998 -99 -99 1016 280 -99-99-99-99 0 0 0 0 0 0 0 0 0 L  
AL2969 NOT NAMED 110800 1969 36.3 20.0 40 1002 -99 -99 1014 255 -99-99-99-99 0 0 0 0 0 0 0 0 0 L  
AL2969 NOT NAMED 110806 1969 35.7 17.5 35 1005 -99 -99 1012 210 -99-99-99-99 0 0 0 0 0 0 0 0 0 L  
AL2969 NOT NAMED 110812 1969 35.1 15.5 30 1009 -99 -99 1014 145 0 0 0 0 0 0 0 0 0 L  
AL2969 NOT NAMED 110818 1969 34.5 14.0 25 1012 -99 -99 1015 145 0 0 0 0 0 0 0 0 0 L  
AL2969 NOT NAMED 110900 1969 34.0 12.0 20 1015 -99 -99 1016 80 0 0 0 0 0 0 0 0 0 L

**Agreed to include in these new entries to HURDAT at the beginning and end of the system.**

5. The Committee otherwise concurs with the proposed changes to this system.

**Agreed.**

1969 AL291969, Hurricane Martha:

1. Were the radar fixes in the Storm Wallet checked to see how well the best track matched them?

**Yes, these are all plotted up against the original and revised best track positions. These required very minor tweaks on the 21<sup>st</sup> and 23<sup>rd</sup>.**

2. The Committee concurs with the earlier genesis, but please provide the basis for the proposed intensities.

**Agreed and so added.**

3. Please better explain the issues with the report from the ship with the call sign DIEL that reported 60 kt and 979 mb. The Committee notes that the report is available in the Storm Wallet (see below), and there is no obvious reason to think that the winds and pressure reported were not simultaneous. If they were, it implies the pressure at the time was lower than 979 mb, and thus the peak intensity may require revision. Please re-examine this.

**At 12Z on the 22nd, a ship reported 60 kt N and 979 mb, and the 979 mb was used as a central pressure in the original HURDAT. It is unclear if these measurements occurred simultaneously. A thorough search for more data on this ship did not produce any results. The only mention of the ship was in the Storm Wallets and because it was a plain language summary it appears that these observations may not have been simultaneous. Additionally, the 979 mb is quite similar to the 982 mb central pressure measured by aircraft just a couple hours later at 1525Z. Thus, the 979 mb is retained as a central pressure under the assumption that the wind and pressure measurements did not occur simultaneously.**

```

ZCZC WBC351
SMVD5 KWBC N 221200 CONTD
SHIP
KPA 99263 70686 22123 60425 97261 18222 43461 34210 0//20 12783
30603 05006 31904 368040
NT
PGBQ 99389 70644 21123 83437 97515 20910 854// 83221 0//06 12122
30309 35709 357100
PGTV 99474 70466 22063 81418 98022 24009 85510 64740 0//07 10682
30202 178060
DKNT 99442 70381 22783 81118 97028 27413 874// 13401 0//11 118030
DHMZ 99380 70456 22063 11311 98000 16220 11600 14204 05218 30302
99/050
GRXJ 99380 70457 22113 61603 98031 015// 62500 1450/ // // //
30302 102030
YTLB 99418 70400 23063 70509 97033 15515 685// 64702 058// 1/900
30302 027030
YTLB 99421 70424 23123 80913 97032 25516 67570 64400 054// 11700
30903 097030
CA
GT KY 99209 70509 21123 73405 98608 14976 73400 53210 0//70 18100
30101 308020
DEEG 99200 70653 22063 80515 98031 12826 855// 84712 05221 30402
05/030
DEEG 99204 70645 22033 20614 99010 15026 00702 54400 05300 03043
055030
GZFK 99162 70625 12063 11213 98020 11727 11500 54821 05124 12705
30503 496060
DHNY 99335 70285 21183 70709 98022 24019 41400 53400 00015 3// //
10/020
DHNY 99334 70321 22003 80813 98032 18032 854// 54740 05217 34//
// // //
DDRV 99238 70596 22093 70205 98022 754// 54309 05313 30101 99/02
0
DDRV 99243 70587 22063 83505 98022 17024 854// 54202 05614 3//02
99503 0
PEDE 99153 70687 22063 80705 96818 10024 893// 83610 0//25 12828
30302 045030
GYNP 99131 70751 22063 80809 98808 07479 3321/ 15820 05675 18405
30501 065030
GHZF 99230 70962 22062 70907 98022 21/22 GHZF 99224 70975 22123
22612 98011 10/180
PELQ 99222 70348 22063 81517 98025 11823 853// 74722 0//22 12506
30304 147040
GWV 99320 70644 22063 63517 98012 20066 6153/ 14400 05555 171000
→ DIEL 10008100W TROPICAL STORM 979 MBS WND NORTH FORCE 11 MASTERO

```

4. Are there any land station highlights from Panama for Martha?

**Panama City provided regular synoptic observations every six hours, but none had tropical storm winds or low pressures. No additional observations were available.**

5. Is something missing in the discussion section for 26 November? “Satellite images showed that continued over the western Caribbean”

**Yes, here’s the full sentence: “Satellite images showed that convection continued over the western Caribbean Sea and eastern Pacific on the 26th but the synoptic data suggests that the remnants of Martha did not redevelop.”**

6. The Committee otherwise concurs with the proposed changes.

**Agreed.**

1969 AL301969, Tropical Depression (new)/Storm Wallet TD#15:

1. The Committee concurs with the addition of this system to HURDAT.

**Agreed.**

1969 Additional Notes:

1. Several of the suspect systems have been accounted for in the individual systems section above, particularly those that were either already in HURDAT or were included in the Storm Wallets.

**Yes, for completeness sake, these are included in both sections.**

2. The US East Coast system of 29 October – 5 November (suspect #20): The Committee concurs with keeping this system out of HURDAT, but given the apparent strong intensity would like the MF maps to be added to the archive.

**These microfilm maps are now added to the archive.**

3. The Committee concurs with leaving the other suspect systems out of HURDAT.

**Agreed.**